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ABSTRACT

This paper presents data on educational expenditures of lesser developed countries (LDCs) and member countries of the Organisation for Economic Cooperation and Development (OECD) and compares patterns of expenditures by levels of education. Expenditures for each level of education are also analyzed in terms of unit costs, enrollment rates, and the proportion of school-age population in the total population. Statistical analysis of the data shows no significant relationship between the portion of Gross National Product (GNP) a nation dedicates to education and GNP per capita. Also, the way countries allocate the educational budget among levels of education bears no relationship to GNP per capita. However, countries within the same geographic region do present similar patterns of educational financial variables. Comparison of educational expenditures for LDCs and OECD countries reveals that the low elementary school enrollment rates in LDCs can be attributed to large primary school-age populations, rather than to low total primary school expenditures or high unit costs. However, the low enrollment rates in secondary and higher education in LDCs are mainly the result of exceedingly high unit costs in relation to GNP per capita. (Author)

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Patterns of Educational Expenditures

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PATTERNS OF EDUCATIONAL EXPENDITURES

This paper presents data on educational expenditures of LDCs and OECD countries and compares patterns of allocation of these expenditures by levels of education. Expenditures by each level of education are also analyzed in terms of their three components: unit costs, enrollment rates, and the proportion of the school-age population in the total population (demographic burden). A statistical analysis of the data shows that there is no significant relationship between the portion of GNP a nation dedicates to education and GNP per capita. Also, the way countries allocate the educational budget among levels of education bears no relationship to GNP per capita. However, countries belonging to the same geographical region do present similar patterns of behavior of educational financial variables.

A comparison of educational expenditures of LDCs with OECD countries reveals that the low elementary school enrollment rates in LDCs can be attributed to existing large primary school-age populations rather than to low total primary school expenditures or high unit costs. But the low enrollment rates in secondary and higher education in LDCs are mainly the result of exceedingly high unit costs in relation to GNP per capita.

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PATTERNS OF EDUCATIONAL EXPENDITURES

Introduction and Summary

During the 1950's and 1960's a number of authors attempted to relate incomes or stages of development to educational expenditures and enrollments in primary, secondary and university levels.

Harbison and Myers,[1/] for example, report good correlation coefficients between GNP/capita and different levels of enrollments. Lewis[2/] found relationships between secondary education and development. Peaslee[3/] found that a 50% minimum enrollment rate in primary schooling is needed to achieve any "significant" rate of growth. Kaser[4/] tried to relate levels and growth rates of national product per capita to quantity and quality of education.

1/ F. Harbison and C.A. Myers. Education, Manpower and Economic Growth. McGraw Hill, N.Y., 1964.

2/ W.A. Lewis. "Secondary Education and Economic Structure". Social and Economic Studies University of West Indies, Jamaica, Vol. 13, June 1964.

3/ Alexander L. Peasleee, "Primary School Enrollments and Economic Growth". Comparative Education Review, Feb. 1967.

4/ M.C. Kaser. "Education and Economic Progress Experience in Industrialized Market Economies" in E.A.G. Robinson and John Vaizey. Martins Press, New York, 1965.

McClelland[1/] investigated the relationship between levels of development and the educated stock, and also between "achievement levels" and higher levels of education. The introduction of lags in the analysis by Curle, Anderson and Bowman, and Kaser[2/] was an attempt to relate enrollments and expenditures of education of one period to increased rate of growth or income per capita of a later period.

These and similar studies relating educational expenditures with economic growth[3/] merely show that increases in educational expenditures or enrollments are probably a concomitant of economic growth. This paper goes beyond previous studies: firstly, by analyzing educational expenditures in terms of their allocation to the different levels of education; secondly, by analyzing the expenditures by levels of education in terms of their three components: unit costs, enrollment rates, and the proportion of the school age population in the total population (demographic burden).

1/ David C. McClelland. "Does Education Accelerate Economic Growth?" Economic Development and Cultural Change, Vol. XV, No. 3, April 1966.

2/ A. Curle. "Education, Politics and Development", Comparative Education Review VII, 1964.
M.J. Bowman and C.A. Andersen, "Concerning the Role of Education in Development" in C. Geertz ed. Old Societies and New States, the Free Press, 1963.
M.C. Kaser, op. cit.

3/ F. Edding, "Expenditures on Education Statistics and Comments" in E.A.G. Robinson and John Vaizey eds. op. cit.
Daniel Blot and Michel Debueauvais, "Educational Expenditures in Developing Countries: Some Statistical Aspects" in Financing of Education for Economic Growth. OECD, Paris, 1966.

Thirdly, by comparing patterns of educational expenditures of different geographic regions.

To facilitate this comparative analysis Part 1 presents the concepts of a "typical country" and/or "typical region". Part I also presents data for 69 LDCs grouped by geographical regions for the year Circa 1973. This data is based on information contained in Bank documents. 1/

Part II presents a statistical analysis of the data. The main conclusions derived from this analysis are that: (i) the portion of the GNP a nation dedicates to education, and the way the budget is allocated among the different levels of education is not a function of GNP per capita; (ii) the behavior of educational financial variables varies from one geographical region to another.

Part III presents data for the OECD countries similar to those used for the LDCs, and a comparison of a "typical OECD country" with a "typical LDC". This comparison reveals that the high proportion of school age children in the population is a major factor in the low enrollment rate in LDC's elementary schools, while the low enrollment rates in secondary and higher education are mainly the result of high unit costs relative to GNP per capita.

1/ This data does not include in many instance out-of-school education, nor education provided by the private sector.

Part I

Comparing Educational Expenditures of LDCs

Theoretically a nation's expenditure on different kinds of education should be influenced by (i) the number of children to be educated, (ii) the nation's preference for various types of education, and (iii) the costs per student or graduate for these types of education.

For example, if country A has a preference for elementary education, and country B for secondary education; both countries have the same number of children in the respective age groups; but per student costs for secondary school are much higher than per student costs in the elementary school; then, country B will clearly have to make a larger financial effort to satisfy its preference.

If both countries have the same costs per student and the same preference for levels of education, but for demographic reasons there is a larger proportion of school-age children in country A, country A will have to make a greater financial effort to satisfy its educational demand. Any comparison of educational expenditures should, therefore, include an analysis of costs per student and the number of students by level, as well as the age pyramid of the population.

Indicators of Educational Expenditure Patterns

Total educational expenditures can be expressed as follows:

$$E = C_e N_e + C_s N_s + C_h N_h \qquad (1)$$

where

E = Total expenditures

C_e = Costs per student in elementary education

C_s = " " " " secondary "

C_h = " " " " higher "

N_e = Number of students in elementary education

N_s = " " " " secondary "

N_h = " " " " higher "

The number of students at each level can be expressed as the proportion of those enrolled in that level, as a percentage of the total number of persons in the age group. These relationships can be expressed as follows:

$$N_e = n_e A_e \text{ where } n_e = \frac{N_e}{A_e}$$

$$N_s = n_s A_s \text{ where } n_s = \frac{N_s}{A_s}$$

$$N_h = n_h A_h \text{ where } n_h = \frac{N_h}{A_h}$$

A_e = Number of people in the age cohort of elementary schooling

A_s = Number of people in the age cohort of secondary schooling

A_h = Number of people in the age cohort of higher schooling

in turn,

$$A_e = a_e P \quad \text{where} \quad a_e = \frac{A_e}{P}$$

$$A_s = a_s P_s \quad \text{where} \quad a_s = \frac{A_s}{P}$$

$$A_h = a_h P \quad \text{where} \quad a_h = \frac{A_h}{P}$$

P = Total population

Formula (1) can now be written as:

$$E = C_e n_e a_e P = C_s n_s a_s P + C_h n_h a_h P \qquad (2)$$

Because educational effort is usually expressed as the ratio of educational expenditures to a measure of national income, the following equation can be given:

$$E_x = \frac{E}{Y} = C_e n_e a_e \frac{P}{Y} + C_s n_s a_s \frac{P}{Y} + C_h n_h a_h \frac{P}{Y} \qquad (3)$$

or

$$E_x = \frac{E}{Y} = \frac{C_e}{Y/P} n_e a_e + \frac{C_s}{Y/P} n_s a_s + \frac{C_h}{Y/P} n_h a_h$$

$$= C_{ye} n_e a_e + C_{ys} n_s a_s + C_{yh} n_h a_h \qquad (4)$$

where E_x = Educational expenditures/income per capita

Y = National income

Y/P = Income per capita

C_y = Cost per student as proportion of income per capita

For the purpose of comparing educational expenditures of different countries or regions we define a "typical country" or "typical region" as one representing the characteristics of a group of countries or regions in terms of the variables presented above.

The equation for the "typical country" or "typical region" can be written as follows:

$$\hat{E}_x = \frac{\hat{E}}{\hat{Y}} = \hat{C}_{ye}\,\hat{n}_e\,\hat{a}_e + \hat{C}_{ys}\,\hat{n}_s\,\hat{a}_s + \hat{C}_{yh}\,\hat{n}_h\,\hat{a}_h \qquad (5)$$

When $E_x \neq \hat{E}_x$ it is possible to attribute the difference to the levels of education as follows:

$$\overbrace{\frac{E_x - \hat{E}_x}{\hat{E}_x}}^{\Delta x} = \overbrace{\frac{C_{yc}n_e a_e - \hat{C}_{ye}\hat{n}_e\hat{a}_e}{\hat{E}_x}}^{\Delta e} + \overbrace{\frac{C_{ys}n_s a_s - \hat{C}_{ys}\hat{n}_s\hat{a}_s}{\hat{E}_x}}^{\Delta s} + \overbrace{\frac{C_{yh}n_h a_h - \hat{C}_{yh}\hat{n}_n\hat{a}_h}{\hat{E}_x}}^{\Delta h} \qquad (6)$$

$$\frac{\Delta x}{\hat{E}_x} \quad \frac{\Delta e}{\hat{E}_x} \quad \frac{\Delta s}{\hat{E}_x} \quad \frac{\Delta h}{\hat{E}_x}$$

where

Δx = Total difference

Δe = Difference attributable to elementary education

Δs = " " " secondary "

Δh = " " " higher "

For each level, it is possible to calculate the influence of cost per student, enrollment to age ratio, and proportion of age to total population, by calculating $\frac{C_y}{\hat{C}_y}$, $\frac{n}{\hat{n}}$, and $\frac{a}{\hat{a}}$ for the different levels, as follows:

$$\frac{E_{xe}}{\hat{E}_{xe}} = \left(\frac{C_{yc}}{\hat{C}_{ye}}\right) \left(\frac{n_e}{\hat{n}_e}\right) \left(\frac{a_c}{\hat{a}_e}\right)$$

$$\frac{E_{xs}}{\hat{E}_{xs}} = \left(\frac{C_{ys}}{\hat{C}_{ys}}\right) \left(\frac{n_s}{\hat{n}_s}\right) \left(\frac{a_c}{\hat{a}_s}\right)$$

$$\frac{E_{xh}}{\hat{E}_{xh}} = \left(\frac{C_{yh}}{\hat{C}_{yh}}\right) \left(\frac{n_h}{\hat{n}_h}\right) \left(\frac{a_h}{\hat{a}_h}\right)$$

If values of 100 are assigned to $\hat{C}$, $\hat{n}$, and $\hat{a}$, the weights of $\frac{C}{\hat{C}}$, $\frac{n}{\hat{n}}$, and $\frac{a}{\hat{a}}$ can be calculated separately for every level. This will show at a glance which factor contributes more weight to the relationship $\frac{E}{\hat{E}}$.

Tables I to VII present the educational expenditures, total and by levels of education, of each country compared to those of a "typical country" in the region. Table VIII presents the same type of data for each region compared to those of a "typical region".

Note on the use of Tables I to VIII

These tables facilitate the comparison of total expenditures and expenditures by level of education of any country in a region with a "typical country" in the same region, and hence with any other country in the same region. For example, if we wish to assess the pattern of educational expenditures of Zaire (Table I), we learn from Table I-1 that Zaire spends 11% more on education as percent of GNP than the "typical country" in Eastern Africa. But this is not evenly distributed among the levels of education, because it spends 11% more on primary education, 118% more on higher education, but 27% less on secondary education. Tables I-1, I-2, I-3 and I-4 present the reasons why Zaire spends more or less than the "typical country" on each level. For example, Zaire spends more on primary education because its enrollment rate is higher, although its unit cost/GNP per capita is lower (Table I-2). It spends 118% more on higher education mainly because its unit costs/GNP per capita are 91% higher, rather than because of higher enrollment rates (Table I-4). Although its enrollment rate is higher, it spends less on secondary education because its unit costs/GNP per capita are much lower (Table I-3).

Total educational expenditures in some instances exceed the sum of expenditures in elementary, secondary and higher education as they may include adult and non-formal education.

Table I-1: EASTERN AFRICA

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL COUNTRY" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL COUNTRY"	3.92	2.04	1.13	.59				
Botswana	5.41	2.48	2.04	.88	38	21	80	50
Burundi	2.93	1.33	1.49	.10	- 25	- 34	32	- 81
Ethiopia	2.40	1.15	.77	.47	- 38	- 43	- 31	- 20
Kenya	6.15	3.81	1.61	.73	57	86	42	24
Lesotho	5.20	2.40	1.20	1.60	32	17	06	171
Madagascar	4.82	2.44	1.62	.76	23	19	43	28
Malawi	2.52	1.21	.59	.71	- 35	- 40	- 47	21
Mauritius	3.92	2.52	1.10	.28	00	24	- 01	- 50
Rwanda	3.64	2.43	.67	.53	- 07	19	- 40	- 09
Somalia	1.89	1.26	.36	.27	- 51	- 38	- 68	- 54
Sudan	5.05	2.10	1.77	1.17	28	03	57	99
Swaziland	5.57	2.58	1.96	1.03	42	26	73	75
Tanzania	3.80	1.78	1.42	.58	- 03	- 12	26	- 00
Zaire	4.37	2.26	.82	1.28	11	11	- 27	118
Zambia	4.24	2.51	1.31	.42	08	23	16	- 28

Table I-2: EASTERN AFRICA

FACTORS INFLUENCING EXPENDITURES ON PRIMARY EDUCATION

(In Percentages)

	Primary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	2.04	20	46	21			
Botswana	2.48	16	63	23	- 16	35	11
Burundi	1.33	37	17	20	86	- 62	- 03
Ethiopia	1.15	36	15	20	81	- 66	- 03
Kenya	3.81	25	68	21	28	46	02
Lesotho	2.40	12	94	20	- 37	102	- 03
Madagascar	2.44	17	65	20	- 10	40	- 00
Malawi	1.21	10	53	21	- 47	15	01
Mauritius	2.52	14	81	21	- 27	75	01
Rwanda	2.43	24	49	20	21	05	- 03
Somalia	1.26	37	15	22	86	- 67	07
Sudan	2.10	33	29	21	66	- 37	02
Swaziland	2.58	14	79	22	- 27	70	06
Tanzania	1.78	23	35	21	16	- 24	04
Zaire	2.26	15	68	21	- 22	47	00
Zambia	2.51	14	77	22	- 27	67	05

Table 1-3: EASTERN AFRICA

FACTORS INFLUENCING EXPENDITURES ON SECONDARY EDUCATION

(In Percentages)

	Secondary Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.13	124	5.94	15			
Botswana	2.04	160	7.72	16	29	29	10
Burundi	1.49	567	1.79	14	357	- 69	- 02
Ethiopia	0.77	108	4.87	14	- 12	- 18	- 02
Kenya	1.61	120	8.88	15	- 02	49	00
Lesotho	1.20	83	9.29	15	- 32	56	03
Madagascar	1.62	109	9.98	14	- 11	68	- 01
Malawi	0.59	181	2.35	13	46	- 60	- 07
Mauritius	1.10	16	39.29	16	- 86	561	11
Rwanda	0.67	253	1.66	15	104	- 71	06
Somalia	0.36	109	2.00	16	- 11	- 66	09
Sudan	1.77	159	7.46	14	28	25	- 00
Swaziland	1.96	73	16.57	16	- 40	179	07
Tanzania	1.42	428	2.19	15	245	- 63	01
Zaire	0.82	59	9.32	14	- 52	56	00
Zambia	1.31	100	9.34	14	- 19	57	- 06

Table I-4: EASTERN AFRICA

FACTORS INFLUENCING EXPENDITURES ON HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.59	927	.51	12			
Botswana	.88	418	1.75	12	- 54	244	00
Burundi	.10	427	.19	12	- 53	- 61	06
Ethiopia	.47	1398	.26	12	50	- 47	05
Kenya	.73	643	.90	12	- 30	76	05
Lesotho	1.60	1994	.58	13	115	13	15
Madagascar	.76	821	.73	12	- 11	43	05
Malawi	.71	1400	.43	11	51	- 15	- 01
Mauritius	.28	193	1.03	14	- 79	02	20
Rwanda	.53	2358	.17	12	154	- 65	05
Somalia	.27	579	.34	13	- 37	- 32	12
Sudan	1.17	1262	.73	12	36	44	04
Swaziland	1.03	915	.94	11	- 01	84	00
Tanzania	.58	3420	.13	12	268	- 73	05
Zaire	1.28	1777	.56	12	91	11	06
Zambia	.42	471	.80	11	- 49	57	- 07

Table II-1: WESTERN AFRICA

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL COUNTRY" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL COUNTRY"	3.51	1.64	1.20	.49				
Benin	5.92	3.58	2.01	.32	68	118	67	- 33
Cameroon	7.11	2.16	3.91	1.02	102	32	226	109
Chad	2.84	1.70	.65	.48	- 18	03	- 45	- 00
Ghana	3.69	1.56	1.05	1.08	05	- 04	- 12	121
Ivory Coast	5.40	2.02	2.47	.91	53	23	05	85
Liberia	1.95	.81	.65	.48	- 44	- 50	- 45	- 01
Mali	3.38	1.65	1.52	.20	- 03	00	27	- 58
Niger	1.91	1.12	.62	.15	- 45	- 31	- 47	- 67
Nigeria	2.76	1.09	1.17	.49	- 21	- 33	- 02	00
Senegal	3.58	1.87	1.15	.55	02	14	- 03	13
Sierra Leone	3.63	1.10	1.15	1.37	03	- 32	- 03	181
Togo	4.27	2.31	1.38	.57	21	41	15	17
Upper Volta	2.69	1.92	.59	.17	- 23	17	- 50	- 63

Table II-2: WESTERN AFRICA

FACTORS INFLUENCING EXPENDITURES ON PRIMARY EDUCATION

(In Percentages)

	Primary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.64	24	37.85	18			
Benin	3.58	54	35.95	18	125	- 04	- 02
Cameroon	2.16	13	86.44	18	- 42	128	00
Chad	1.70	33	29.03	17	40	- 23	- 03
Ghana	1.56	09	78.84	20	- 60	108	15
Ivory Coast	2.02	17	66.44	17	- 28	75	- 01
Liberia	.81	09	52.01	17	- 62	37	- 04
Mali	1.65	38	23.45	18	62	- 38	00
Niger	1.12	49	12.30	18	104	- 67	03
Nigeria	1.09	17	33.95	18	- 28	- 10	04
Senegal	1.87	27	37.41	17	16	- 01	00
Sierra Leone	1.10	15	39.91	18	- 36	05	00
Togo	2.31	15	77.96	18	- 34	105	04
Upper Volta	1.92	92	11.68	17	283	- 69	- 00

Table II-3: WESTERN AFRICA

FACTORS INFLUENCING EXPENDITURES ON SECONDARY EDUCATION

(In Percentages)

	Secodnary Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.20	142	4.99	17			
Benin	2.01	200	5.86	17	41	17	- 00
Cameroon	3.91	267	8.73	16	88	75	- 01
Chad	0.65	201	1.79	17	41	- 63	05
Ghana	1.05	102	6.33	16	- 28	27	- 04
Ivory Coast	2.47	155	9.62	16	09	92	- 02
Liberia	0.65	39	10.21	16	- 72	104	- 03
Mali	1.52	239	3.73	17	68	- 25	00
Niger	.62	290	1.25	17	104	- 74	01
Nigeria	1.17	180	3.76	17	27	- 24	01
Senegal	1.15	80	8.49	16	- 42	70	- 01
Sierra Leone	1.15	64	10.57	17	- 54	112	00
Togo	1.38	78	10.21	17	- 44	104	01
Upper Volta	.59	275	1.27	16	93	- 74	- 01

Table II-4: WESTERN AFRICA

FACTORS INFLUENCING EXPENDITURES ON HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.49	1405	.33	10			
Benin	.32	1761	.17	10	25	- 47	06
Cameroon	1.02	1793	.64	08	27	96	- 11
Chad	.48	3147	.13	11	124	- 58	13
Ghana	1.08	1652	.67	09	17	105	- 03
Ivory Coast	.91	891	.97	10	- 36	194	04
Liberia	.48	447	1.02	10	- 68	211	05
Mali	.20	1365	.13	10	- 02	- 58	07
Niger	.15	2274	.06	10	61	- 80	07
Nigeria	.49	1868	.24	10	32	- 26	07
Senegal	.55	795	.65	10	- 43	98	06
Sierra Leone	1.37	1349	.95	10	- 03	189	06
Togo	.57	611	.88	10	- 56	167	06
Upper Volta	.17	3330	.04	10	137	- 84	06

Table III-1: ASIA

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL COUNTRY" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL COUNTRY"	3.04	1.33	.93	.56				
Burma	3.11	1.09	1.34	.67	02	- 17	44	20
Indonesia	2.17	1.54	.43	.19	- 28	16	- 53	- 65
Korea (Republic Of)	3.37	1.57	1.21	.57	11	18	30	03
Malaysia	4.99	2.34	1.82	.82	64	76	96	46
Nepal	.73	.21	.20	.30	- 75	- 83	- 78	- 44
Pakistan	2.80	.69	.82	1.29	- 07	- 47	- 11	130
Papua & N.G.	5.04	2.77	1.40	.86	65	108	51	55
Philippines	4.93	2.73	.94	1.26	62	105	01	125
Singapore	2.42	1.07	.83	.51	- 20	- 19	- 09	- 08
Sri Lanka	4.90	1.73	2.89	.27	61	30	211	- 50
Thailand	2.97	1.75	.71	.50	- 02	32	- 23	- 10

Table III-2: ASIA

FACTORS INFLUENCING EXPENDITURES ON PRIMARY EDUCATION

(In Percentages)

	Primary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.33	11	53.66	21			
Burma	1.09	08	65.46	20	- 24	22	- 03
Indonesia	1.54	12	58.40	21	12	08	02
Korea (Republic Of)	1.57	09	84.78	20	- 17	58	- 02
Malaysia	2.34	14	71.34	22	33	32	06
Nepal	.21	09	11.13	20	- 12	- 79	- 02
Pakistan	.69	10	31.20	22	- 08	- 41	05
Papua & N.G.	2.77	31	42.33	20	188	- 21	- 01
Philippines	2.73	15	80.85	21	40	50	04
Singapore	1.07	06	80.67	19	- 38	50	- 05
Sri Lanka	1.73	12	65.95	21	13	22	00
Thailand	1.75	10	72.71	22	- 01	35	06

Table III-3: ASIA

FACTORS INFLUENCING EXPENDITURES ON SECONDARY EDUCATION

(In Percentages)

	Secondary Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.93	27	25.14	13			
Burma	1.34	34	30.56	12	28	21	- 02
Indonesia	.43	18	17.68	13	- 30	- 29	01
Korea (Republic Of)	1.21	14	57.48	14	- 46	128	13
Malaysia	1.82	28	44.43	14	06	76	09
Nepal	.20	29	5.16	13	10	- 79	01
Pakistan	.82	35	17.05	13	30	- 32	05
Papua & N.G.	1.40	108	10.14	12	300	- 59	- 01
Philippines	.94	18	39.26	13	- 32	56	01
Singapore	.83	10	53.65	15	- 62	113	17
Sri Lanka	2.89	38	59.19	12	43	135	- 02
Thailand	.71	31	16.51	13	15	- 34	05

Table III-4: ASIA

FACTORS INFLUENCING EXPENDITURES ON HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.56	205	2.15	13			
Burma	.67	270	2.04	12	32	- 04	- 06
Indonesia	.19	95	1.72	11	- 53	- 19	- 08
Korea (Republic Of)	.57	86	4.86	13	- 58	126	06
Malaysia	.82	521	1.18	13	154	- 44	02
Nepal	.30	195	1.22	12	- 04	- 43	- 00
Pakistan	1.29	309	3.30	12	50	53	02
Papua & N.G.	.86	1405	.50	12	585	- 76	- 04
Philippines	1.26	63	15.87	12	- 69	638	- 03
Singapore	.51	70	4.77	15	- 65	122	17
Sri Lanka	.27	279	.81	12	36	- 61	- 07
Thailand	.50	220	1.82	12	07	- 15	- 03

Table IV-1: EMENA

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL COUNTRY" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL COUNTRY"	4.24	1.71	1.54	.84				
Afghanistan	1.18	.49	.35	.33	- 71	- 70	- 76	- 60
Algeria	5.75	2.73	1.87	1.14	35	59	21	36
Egypt	6.03	2.18	2.66	1.17	42	27	73	40
Jordan	6.06	2.64	1.75	1.66	43	54	13	98
Morocco	5.76	1.80	3.40	.56	36	05	120	- 32
Syria	5.44	2.38	2.39	.66	28	39	55	- 21
Turkey	1.92	.78	.44	.69	- 54	- 54	- 71	- 16
Tunisia	6.91	2.80	2.85	1.25	63	64	85	49

Table IV-2: EMENA

FACTORS INFLUENCING EXPENDITURES ON PRIMARY EDUCATION
(In Percentages)

	Primary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.71	15	57.99	19			
Afghanistan	.49	12	19.21	20	- 14	- 66	06
Algeria	2.73	16	74.00	21	12	27	14
Egypt	2.18	19	60.02	18	32	03	- 03
Jordan	2.64	19	69.63	19	30	20	02
Morocco	1.80	23	37.26	20	54	- 35	09
Syria	2.38	14	87.56	19	- 06	50	02
Turkey	.78	04	87.79	18	- 67	51	- 04
Tunisia	2.80	18	75.23	20	23	29	06

Table IV-3: EMENA

FACTORS INFLUENCING EXPENDITURES ON SECONDARY EDUCATION

(In Percentages)

	Secondary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.54	47	20.18	16			
Afghanistan	.35	34	6.23	16	- 25	- 69	03
Algeria	1.87	74	14.82	16	58	- 26	06
Egypt	2.66	53	31.80	15	13	57	- 02
Jordan	1.75	36	31.45	15	- 21	55	- 05
Morocco	3.40	172	12.75	15	266	- 36	- 03
Syria	2.39	37	40.95	15	- 20	102	- 01
Turkey	.44	10	28.61	15	- 78	41	- 03
Tunisia	2.85	81	19.91	17	73	- 01	09

Table IV-4: EMENA

FACTORS INFLUENCING EXPENDITURES ON HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor
"TYPICAL COUNTRY"	.84	306	2.20	12			
Afghanistan	.33	622	.38	13	103	- 82	16
Algeria	1.14	351	2.54	12	14	15	07
Egypt	1.17	186	4.86	12	- 38	121	08
Jordan	1.66	641	2.11	12	109	- 03	02
Morocco	.56	503	1.07	10	64	- 51	- 12
Syria	.66	76	6.96	12	- 75	216	03
Turkey	.69	148	3.94	11	- 51	79	- 00
Tunisia	1.25	521	1.85	12	70	- 15	07

Table V-1: LATIN AMERICA & CARIBBEAN

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL COUNTRY" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL COUNTRY"	3.14	1.63	.84	.55				
Argentina	3.24	1.72	.90	.62	03	05	07	12
Bolivia	5.49	2.69	1.49	1.31	74	65	77	138
Brazil	3.91	1.37	1.17	1.37	24	- 15	39	149
Colombia	5.33	1.82	2.38	1.13	69	11	183	105
Costa Rica	5.93	3.69	1.59	.65	89	126	89	18
Chile	4.01	1.45	.78	1.78	27	- 11	- 07	223
Ecuador	3.03	1.44	1.01	.58	- 03	- 11	20	05
El Salvador	3.86	1.93	1.13	.80	23	18	34	47
Guatemala	1.60	.96	.39	.25	- 48	- 41	- 52	- 54
Guyana	3.90	2.01	1.50	.39	24	23	79	- 27
Haiti	.72	.44	.14	.14	- 76	- 72	- 82	- 73
Honduras	2.77	1.87	.38	.51	- 11	14	- 54	- 05
Jamaica	3.75	2.24	1.34	.17	19	37	60	- 68
Mexico	2.63	1.58	.70	.35	- 16	- 03	- 16	- 36
Nicaragua	2.24	1.49	.50	.25	- 28	- 08	- 39	- 54
Panama	3.68	2.03	1.09	.56	17	24	29	03
Paraguay	2.58	1.65	.47	.46	- 17	01	- 44	- 16
Peru	3.14	1.85	.77	.52	00	13	- 08	- 04
Rep. Dominicana	2.58	1.26	.71	.61	- 17	- 22	- 14	11
Trinidad & Tobago	3.55	2.05	1.03	.47	13	26	23	- 14
Uruguay	3.40	1.63	1.08	.69	08	- 00	28	25
Venezuela	3.18	1.25	.80	1.13	01	- 23	- 04	105

Table V-2: LATIN AMERICA & CARIBBEAN

FACTORS INFLUENCING EXPENDITURES ON PRIMARY EDUCATION

(In Percentages)

	Primary Level Expenditures / GNP	Unit Cost / GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost / GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.63	11	67.81	22			
Argentina	1.72	12	94.00	15	10	38	- 31
Bolivia	2.69	24	60.00	19	114	- 11	- 13
Brazil	1.37	09	72.00	21	- 17	06	- 04
Colombia	1.82	13	64.00	22	17	- 05	- 00
Costa Rica	3.69	18	83.99	24	66	23	09
Chile	1.45	08	84.00	21	- 25	23	- 04
Ecuador	1.44	08	71.00	25	- 26	04	13
El Salvador	1.93	12	61.99	25	13	- 08	13
Guatemala	.96	08	41.99	27	- 22	- 38	22
Guyana	2.01	11	69.99	24	08	03	09
Haiti	.44	06	33.00	22	- 43	- 51	00
Honduras	1.87	12	67.99	22	13	00	00
Jamaica	2.24	14	70.98	22	30	04	00
Mexico	1.58	09	66.99	24	- 10	- 01	09
Nicaragua	1.49	09	59.99	25	- 09	- 11	13
Panama	2.03	11	78.98	22	06	16	00
Paraguay	1.65	08	79.99	26	- 27	17	18
Peru	1.85	11	70.00	25	- 03	03	13
Rep. Dominicana	1.26	07	71.99	25	- 36	06	13
Trinidad & Tobago	2.05	15	65.01	21	37	- 04	- 04
Uruguay	1.63	13	86.00	15	14	26	- 31
Venezuela	1.25	08	72.00	23	- 31	06	04

Table V-3: LATIN AMERICA & CARIBBEAN

FACTORS INFLUENCING EXPENDITURES ON SECONDARY EDUCATION

(In Percentages)

	Secondary Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.84	22	24.18	15			
Argentina	.90	22	32.99	12	03	36	- 20
Bolivia	1.49	32	27.00	17	47	11	13
Brazil	1.17	20	27.99	20	- 05	15	33
Colombia	2.38	74	19.99	16	238	- 17	06
Costa Rica	1.59	33	29.98	16	50	24	06
Chile	.78	21	24.00	15	- 01	00	00
Ecuador	1.01	24	25.99	16	10	07	06
El Salvador	1.13	37	19.99	15	71	- 17	00
Guatemala	.39	22	10.99	16	02	- 54	06
Guyana	1.50	18	46.95	16	- 14	94	13
Haiti	.14	19	5.99	13	- 12	- 75	- 13
Honduras	.38	21	12.99	14	- 04	- 46	- 06
Jamaica	1.34	15	64.98	13	- 27	168	- 13
Mexico	.70	21	21.99	15	- 03	- 09	00
Nicaragua	.50	18	15.99	17	- 14	- 33	13
Panama	1.09	21	36.97	14	- 04	52	- 06
Paraguay	.47	16	16.00	18	- 25	- 33	20
Peru	.76	17	26.99	16	- 19	11	06
Rep. Dominicana	.71	23	19.00	16	07	- 21	06
Trinidad & Tobago	1.03	12	43.98	19	- 43	81	26
Uruguay	1.08	24	39.98	11	11	65	- 26
Venezuela	.80	16	29.99	16	- 24	24	06

Table V-4: LATIN AMERICA & CARIBBEAN

FACTORS INFLUENCING EXPENDITURES ON HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.84	121	5.34	8.0			
Argentina	.62	44	17.00	8.2	- 63	218	2
Bolivia	1.31	192	7.98	8.5	59	49	6
Brazil	1.37	262	6.00	8.7	116	12	8
Colombia	1.13	282	3.99	10.0	133	- 25	25
Costa Rica	.65	62	11.97	8.7	- 48	124	8
Chile	1.78	219	9.00	9.0	81	68	12
Ecuador	.58	71	9.00	9.0	- 40	68	12
El Salvador	.80	465	1.99	8.7	284	- 62	8
Guatemala	.25	67	3.99	9.3	- 43	- 25	16
Guyana	.39	171	2.95	7.9	41	- 44	- 1
Haiti	.14	32	4.98	8.9	- 73	- 06	11
Honduras	.51	306	2.01	8.4	153	- 62	5
Jamaica	.17	139	1.01	12.0	15	- 80	50
Mexico	.35	55	7.99	7.9	- 54	49	- 1
Nicaragua	.25	54	4.98	9.3	- 55	- 06	16
Panama	.56	94	6.95	8.7	- 22	30	8
Paraguay	.46	90	5.98	8.5	- 25	12	6
Peru	.52	52	12.99	7.7	- 56	143	- 3
Rep. Dominicana	.61	130	5.98	7.8	08	12	- 2
Trinidad & Tobago	.47	622	1.04	7.2	414	- 80	- 10
Uruguay	.69	103	8.98	7.4	- 14	68	- 7
Venezuela	1.13	119	11.00	8.6	- 01	106	7

Table VI-1: SOUTH AMERICA

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL COUNTRY" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL COUNTRY"	3.63	1.65	.99	.86				
Argentina	3.24	1.72	.90	.62	- 11	04	- 09	- 28
Bolivia	5.49	2.69	1.49	1.31	51	63	51	52
Brazil	3.91	1.37	1.17	1.37	08	- 17	18	59
Colombia	5.33	1.82	2.38	1.13	47	10	140	31
Chile	4.01	1.45	.78	1.78	10	- 12	- 21	107
Ecuador	3.03	1.44	1.01	.58	- 17	- 13	02	- 33
Paraguay	2.58	1.65	.47	.46	- 29	00	- 53	- 47
Peru	3.15	1.85	.77	.52	- 13	12	- 22	- 39
Uruguay	3.40	1.63	1.08	.69	- 06	- 01	09	- 20
Venezuela	3.18	1.25	.80	1.13	- 12	- 24	- 19	31

Table VI-2: SOUTH AMERICA

FACTORS INFLUENCING EXPENDITURES ON PRIMARY EDUCATION

(In Percentages)

	Primary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.65	10	76.64	21			
Argentina	1.72	12	94.00	15	22	26	- 29
Bolivia	2.69	24	60.00	19	136	- 20	- 10
Brazil	1.37	09	72.00	21	- 09	- 04	- 00
Colombia	1.82	13	64.00	22	29	- 14	05
Chile	1.45	08	84.00	21	- 18	13	00
Ecuador	1.44	08	71.00	25	- 19	- 05	19
Paraguay	1.65	08	79.99	26	- 21	07	24
Peru	1.85	11	70.00	25	06	- 06	19
Uruguay	1.63	13	86.00	15	26	15	- 29
Venezuela	1.25	08	72.00	23	- 25	- 04	10

Table VI-3: SOUTH AMERICA

FACTORS INFLUENCING EXPENDITURES ON SECONDARY EDUCATION

(In Percentages)

	Secondary Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations		
					Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor
"TYPICAL COUNTRY"	.99	24	26.35	15			
Argentina	.90	23	33.00	12	- 05	25	- 20
Bolivia	1.49	32	27.00	17	35	02	13
Brazil	1.17	21	28.00	20	- 13	06	33
Colombia	2.38	74	20.00	16	210	- 24	07
Chile	.78	22	24.00	15	- 10	- 09	00
Ecuador	1.01	24	26.00	16	01	- 01	07
Paraguay	.47	16	16.00	18	- 32	- 39	20
Peru	.77	18	27.00	16	- 26	02	07
Uruguay	1.08	25	39.98	11	02	52	- 27
Venezuela	.80	17	30.00	16	- 31	14	07

Table VI-4: SOUTH AMERICA

FACTORS INFLUENCING EXPENDITURES ON HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations		
					Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor
"TYPICAL COUNTRY"	.86	119	8.53	8			
Argentina	.62	44	17.00	8	- 63	99	02
Bolivia	1.31	193	7.99	8	62	- 06	06
Brazil	1.37	262	6.00	9	121	- 30	09
Colombia	1.13	283	4.00	10	137	- 53	25
Chile	1.78	220	9.00	9	85	06	13
Ecuador	.58	72	9.00	9	- 40	06	12
Paraguay	.46	90	5.99	9	- 24	- 30	06
Peru	.52	52	13.00	8	- 56	52	- 04
Uruguay	.69	104	8.98	7	- 13	05	- 08
Venezuela	1.13	119	11.00	9	00	29	08

Table VII-1: CENTRAL AMERICA & CARIBBEAN

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL COUNTRY" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL COUNTRY"	2.79	1.62	.73	38				
Costa Rica	5.94	3.70	1.59	65	113	128	118	71
El Salvador	3.88	1.94	1.13	81	39	20	55	113
Guatemala	1.61	.96	.40	25	- 42	- 41	- 45	- 34
Guyana	3.92	2.01	1.51	40	41	24	107	05
Haiti	.74	.45	.15	14	- 73	- 72	- 80	- 62
Honduras	2.77	1.87	.38	52	- 01	15	- 48	36
Jamaica	3.76	2.24	1.35	17	35	38	84	- 55
Mexico	2.63	1.58	.70	35	- 06	- 02	- 04	- 08
Nicaragua	2.25	1.49	.51	25	- 19	- 08	- 30	- 34
Panama	3.69	2.03	1.09	57	32	25	49	50
Rep. Dominicana	2.59	1.26	.72	61	- 07	- 22	- 02	61
Trinidad & Tobago	3.57	2.06	1.04	47	28	27	42	24

Table VII-2: CENTRAL AMERICA AND CARIBBEAN

FACTORS INFLUENCING EXPENDITURES ON PRIMARY EDUCATION

(In Percentages)

	Primary Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations		
					Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor
"TYPICAL COUNTRY"	1.62	11	62.60	23			
Costa Rica	3.70	18	84.00	24	67	34	04
El Salvador	1.94	13	61.99	25	14	- 01	09
Gumatemala	.96	08	42.00	27	- 23	- 33	17
Guyana	2.01	12	69.99	24	09	12	04
Haiti	.45	06	33.00	22	- 44	- 47	- 04
Honduras	1.87	13	68.00	22	14	09	- 04
Jamaica	2.24	14	70.99	22	30	13	- 04
Mexico	1.58	10	67.00	24	- 11	07	04
Nicaragua	1.49	10	60.00	25	- 10	- 04	09
Panama	2.03	12	78.99	22	06	26	- 04
Rep. Dominicana	1.26	07	72.00	25	- 36	15	09
Trinidad & Tobago	2.06	15	65.02	21	37	04	- 09

Table VIII-3: CENTRAL AMERICA AND CARIBBEAN

FACTORS INFLUENCING EXPENDITURES ON SECONDARY EDUCATION

(In Percentages)

	Secondary Level Expenditures / GNP	Unit Cost / GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost / GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.73	21	22.52	15			
Costa Rica	1.59	33	29.98	16	58	33	07
El Salvador	1.13	38	20.00	15	80	- 11	00
Guatemala	.40	23	10.99	16	08	- 51	07
Guyana	1.51	19	46.95	17	- 10	108	13
Haiti	.15	19	5.99	13	- 09	- 73	- 13
Honduras	.38	21	13.00	14	00	- 42	- 07
Jamaica	1.35	16	64.98	13	- 24	189	- 13
Mexico	.70	21	22.00	15	01	- 02	- 00
Nicaragua	.51	19	16.00	17	- 11	- 29	13
Panama	1.09	21	36.97	14	00	64	- 07
Rep. Dominicana	.72	24	19.00	16	12	- 16	07
Trinidad & Tobago	1.04	12	43.99	19	- 41	95	27

Table VII-4: CENTRAL AMERICA & CARIBBEAN

FACTORS INFLUENCING EXPENDITUES ON HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.38	122	3.61	8			
Costa Rica	.65	62	11.98	9	- 49	232	09
El Salvador	.81	466	2.00	9	282	- 45	09
Guatemala	.25	68	3.99	9	- 44	11	16
Guyana	.40	171	2.95	8	40	- 18	- 01
Haiti	.14	32	4.99	9	- 73	38	11
Honduras	.52	307	2.01	8	151	- 44	05
Jamaica	.17	140	1.02	12	15	- 72	50
Mexico	.35	55	8.00	8	- 55	122	- 01
Nicaragua	.25	54	4.99	9	- 56	38	16
Panama	.57	94	6.95	9	- 23	93	09
Rep. Dominicana	.61	131	5.99	8	07	66	- 03
Trinidad & Tobago	.47	622	1.05	7	410	- 71	- 10

Table VIII-1

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL REGION" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL REGION"	3.47	1.67	1.05	.58				
Eastern Africa	3.92	2.04	1.13	.59	12.96	22.15	7.61	1.72
Western Africa	3.51	1.64	1.20	.49	1.15	- 1.79	14.28	-15.51
Asia	3.04	1.33	.93	.56	-12.39	-20.35	-11.42	- 3.44
EMENA	4.24	1.71	1.54	.84	22.19	2.39	46.66	44.82
Latin America	3.14	1.63	.84	.55	- 9.51	- 2.39	-20.00	- 5.17

Table VIII-2

FACTORS INFLUENCING EXPENDITURES ON PRIMARY EDUCATION

(In Percentages)

	Primary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL REGION"	1.67	15	53.00	21			
Eastern Africa	2.04	20	46	21	33.33	-13.20	0
Western Africa	1.64	24	37.85	18	60	-28.58	-14.28
Asia	1.33	11	53.66	21	-26.66	1.24	0
EMENA	1.71	15	57.99	19	0	9.41	- 9.52
Latin America	1.63	11	67.81	22	-26.66	27.94	4.76

Table VIII-3

FACTORS INFLUENCING EXPENDITURES ON SECONDARY EDUCATION

(In Percentages)

	Secondary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL REGION	1.05	52	13.04	15			
Eastern Africa	1.13	124	5.94	15	138.46	-54.44	0
Western Africa	1.20	142	4.99	17	173.07	-61.73	13.33
Asia	.93	27	25.14	13	-48.07	92.79	-13.33
EMENA	1.54	47	20.18	16	- 9.61	54.75	6.66
Latin America	84	22	24.18	15	-57.69	85.42	0

Table VIII-4

FACTORS INFLUENCING EXPENDITURES ON HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations		
					Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor
"TYPICAL REGION"	.58	362	1.48	11			
Eastern Africa	.59	927	.51	12	156.07	- 65.54	9.09
Western Africa	.49	1405	.33	10	288.12	- 77.70	- 9.09
Asia	.56	205	2.15	13	- 43.37	45.27	18.18
EMENA	.84	306	2.20	12	- 15.46	48.64	9.09
Latin America	.84	121	5.34	8.0	- 66.57	260.81	- 27.27

Table VIII-5

PERCENT DISTRIBUTION OF EDUCATIONAL BUDGETS BY LEVEL

	Primary	Secondary	Higher	Other	Total
"Typical Region"	48	30	17	5	100
Eastern Africa"	52	34	13	7	100
Western Africa	46	34	13	7	100
Asia	43	30	18	5	100
EMENA	40	36	20	4	100
Latin America	52	26	17	5	100

Part II

Analysis of the Data

The objective of the following analysis is to find out and explain the similarities and differences among regions with respect to educational expenditures by levels of education, and to determine if there exist significant relationships between expenditures on education - total and by level - and GNP per capita, unit costs/GNP per capita, and enrollment rates.

The interregional comparison is based on an analysis of Tables VIII-1 to VIII-5. The search for relationships among variables was done using correlation analysis of data from Tables I to VII.

Interregional Comparisons

Differences among regions can be best appreciated by analyzing Table VIII. If we compare the five regions with a "typical region" (a hypothetical region statistically derived from all countries taken as a group) it can be seen that Asia and Latin America spend comparatively less on education than do other regions; nevertheless, they have higher enrollment ratios because their unit costs related to GNP per capita are much lower. Eastern and Western Africa have low enrollment rates because of their high unit costs, especially at the secondary and higher levels. EMENA spends comparatively more on secondary and higher education because of higher secondary and university enrollments without a concomitant reduction in unit costs.

A distribution of the educational budgets by levels of education indicates that on the average countries spend about 48% on primary education, 30% on secondary education, 17% on higher education, and 5% on other forms of education. But there is no doubt that some regions prefer to spend more on certain levels of education (see Table VIII-5).

Not only do allocations among levels differ among regions; the responsiveness of the allocation of educational budgets, unit costs, and enrollment rates to changes in GNP/capita differ as well. For example, the proportion of expenditures on primary education in the total educational budget diminishes as income increases in Eastern Africa, Western Africa and EMENA regions, while there is no systematic change for Latin America and Asia. The proportion of expenditures on higher education in the budget tends to increase as income per capita increases in Eastern Africa, Western Africa and EMENA, while the proportion does not vary significantly with income per capita in Latin America and Asia.

Correlation Analysis

A correlation analysis using linear, logarithmic and semi-logarithmic functions shows the following:

1. Taking all 69 countries as a group (from here-on called "all countries"), there is only a weak direct relationship between total expenditures on education as percent of GNP and GNP per capita (Eq. I-1, 2). However, the introduction of regional characteristics in the equation (in the form of dummy variables) greatly increases the R^2 (Eq. I-3).

The positive relationship is highly significant for Eastern Africa and EMENA regions but not significant for Asia and Latin America (although significant for the Central America and Caribbean sub-region).

2. For "all countries" there is no significant relationship between expenditures on primary education as percent of GNP and GNP per capita, even with the introduction of regional characteristics. Among the regions only Eastern Africa and EMENA show signficant positive relationships (Eq. X-3, 7); other regions do not. However, South America shows a negative relationship, while the Central America and Caribbean sub-region shows a significant positive relationship (eq. X-9 and X-11).

3. (a) It could be expected that a country with a high ratio of primary school population to total population would ceteris paribus, spend a higher portion of GNP on primary education. However, no relationship was found between primary school expenditures as percent of GNP and the proportion of children of school age in the total population for "all countries" or for each region separately. Therefore, we must infer that the size of the group potential beneficiaries of primary education in the population does not influence the amount of resources dedicated to primary education.

(b) But there is a significant positive relationship between expenditures on primary education as percent of GNP and enrollment rates in primary education for "all countries" when introducing regional characteristics in the equation. This relationship is also significant and positive for every region except for Western Africa (Eq. -1, 2, 4, 5, 6, 8, 12 and 13).

4. It could be expected that poorer countries would allocate a larger portion of their GNP to primary education than would rich countries. However, no significant relationship was found between expenditures on primary education as proportion of total educational expenditures and GNP per capita for "all countries", nor for Asia and Latin America. But Eastern Africa, Western Africa and EMENA do show a significant negative relationship (Eq. XI -1, 2, 3, 4).

5. There is no significant relationship for "all countries", Asia, Western Africa and Latin America between expenditures on secondary education as percent of GNP and GNP per capita, but we do find a significant positive relationship for the Eastern Africa and EMENA regions and the Central America and Caribbean sub-region (Eq. XII -4, 7, 9).

6. Expenditures on secondary education as percent of GNP correlate positively with enrollment rates of secondary education for "all countries" only when regional characteristics are accounted for (Eq. XII -1, 2). The positive relationship is also significant for all regions and the Central America and Caribbean sub-region (Eq. XII -3, 4, 5, 6, 7, 8, 10, 11).

7. There is no significant relationship between the proportion of secondary educational expenditures in the educational budget and GNP per capita for "all countries" and all other regions and sub-regions. Only the EMENA region shows a signficant positive relationship (Eq. XII-12).

8. There is no significant relationship between higher education expenditures as percent of GNP and GNP per capita for "all countries", Asia and Latin America regions, but there is a significant positive relationship for Eastern Africa, Western Africa and EMENA regions (Eq. XIII-3, 4, 7).

9. One would expect that richer nations would allocate a larger portion of their budget to higher education. This is not so. There is a significant positive relationship between the share of higher education expenditures and income per capita only for Eastern and Western Africa, and negative for EMENA. "All countries", Asia and Latin America show no significant relationship (Eq. XIII-8, 9, 10).

10. There is a significant positive relationship between expenditures on higher education as a percent of GNP and enrollment rates in higher education for "all countries" when regional characteristics are introduced (Eq. XIII-1, 2) and for the Western Africa and Asia regions (Eq. XIII-5, 6).

11. In general, primary school enrollment rates correlate positively with GNP/capita for "all countries" (the adding of regional characteristics does not affect the correlations), and for each region separately (Eq. XIV-1, 3, 6, 8, 10, 12, 14, 15). The R^2s increase substantially when expenditure on elementary education as percent of GNP is added as an independent variable (Eq. XIV-2, 4, 5, 7, 9, 11, 13, 16).

12. There is a significant positive relationship between enrollment rates in secondary education and GNP/capita for "all countries" when regional characteristics are included (Eq. XV-1, 2), and for each region separately (Eq. XV-6, 7, 11, 12, 15, 17). R^2s increase substantially when expenditures on secondary education as percent of GNP are included as an independent variable (Eq. XV-5, 8, 9, 10, 13, 14, 16, 18). Enrollment rates in secondary education correlate positively with enrollment rates in primary education[1/] only for "all countries" when regional characteristics are taken into consideration and for Central America and Caribbean sub-region (Eq. XV-3, 4).

13. There is a significant positive correlation between enrollment rates in higher education and GNP/capita for "all countries" when regional characteristics are taken into consideration (Eq. XVI-1, 2, 3, 4). The same significant positive correlation exists for Western Africa, Eastern Africa and EMENA regions (Eq. XVI-7, 9, 12), but not for Asia and Latin America. In Asia, Eastern Africa and Western Africa, R^2 is increased when the proportion of expenditures on higher education as percent of GNP is included as an independent variable (Eq. XVI-8, 10, 11). Higher education enrollment rates correlate positively also with secondary

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1/ Enrollment rates in higher education should be correlated with lagged enrollment rates in primary schools. Lack of data prevented this exercise.

education enrollment rates[1/] only for "all countries" when regional characteristics are included in the equation Eq. XVI-4, 5), but there is no significant correlation between the enrollment rates when considering each region separately.

14. The introduction of unit costs/GNP per capita do not add any explanatory value to the relationship of enrollment rates and GNP/capita for "all countries". However, it increases the R^2 in some regions and levels of education. In all cases there is a negative relationship between enrollment rates and unit costs/GNP per capita. The introduction of unit costs increases the R^2 of the regression between primary school enrollment rates and GNP/capita only for Eastern Africa (Eq. XVII-1); the R^2 of the regression between secondary school enrollment rates and GNP/capita for Eastern Africa and EMENA (Eq. XVII-2, 4); and the R^2 of the regression between higher education enrollment rates and GNP/capita for Asia, EMENA; and Latin America (Eq. XVII-3, 5, 6, 7, 8).

15. For "all countries" there is a significant negative relationship between primary school unit costs in relation to GNP/capita, and GNP/capita when regional characteristics are taken into account (Eq. XVIII-1, 2, 3, 4). The same occurs for Eastern Africa, Western Africa, and the South America sub-region (Eq. XVIII-5, 6, 8). The relationship is positive for EMENA and the Central America and Caribbean sub-region

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1/ Enrollment rates in higher education should be correlated with lagged enrollment rates of secondary schools. Lack of data prevented this exercise.

(Eq. XVIII-7, 9), but there is no relationship at all for the Asia region. At the secondary and higher levels of education unit costs/ GNP per capita correlate negatively with GNP/capita for "all countries", especially when regional characteristics are taken into account (Eq. XIX-1, 2, 3, 4 and Eq. XX-1, 2, 3, 4) and for Eastern Africa and Western Africa regions (Eq. XIX-5, 6 and Eq. XX-5, 6). There are no significant relationships between unit costs and GNP/capita for the other regions.

Conclusions

The preceding analysis of the relationships between expenditures, their share in GNP and educational budgets, enrollment rates, and unit costs leads to the following two main conclusions:

1. There are major differences in the behavior of educational variables among geographical regions.

   In almost every case, when correlating the different variables using the 69 countries (the group labelled "all countries") for the analysis, the explanatory power of the independent variables was increased substantially when regional characteristics (in the form of dummy variables) were

added[1/] (Eq. IX-3; X-2; XII-2; XIII-2; XV-2, 4; XVI-3, 4, 6; XVIII-3, 4; XIX-3, 4; XX-3, 4). For example, when correlating the share of educational expenditures and GNP/ per capita the R^2 is only .0352; with the introduction of regional characteristics R^2 increases to .2966; when correlating expenditures on secondary education as percent of GNP to enrollment rates in secondary education R^2 is only .0726; with the introduction of regional characteristics R^2 increases to .3954, and so on.

Some relationships significant for one region were meaningless for others. Relationships among variables were sometimes positive for one region and negative for another. On the other

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1/ The regional characteristics are introduced by adding to the equation independent variables representing each region respectively.

$$y = a + b_z + c_1x_1 + c_2x_2 + c_3x_3 + c_4x_4$$

where $x_1 = 1$ for region 1 (otherwise zero)

$x_2 = 1$ " " 2 (" ")

$x_3 = 1$ " " 3 (" ")

$x_4 = 1$ " " 4 (" ")

Since there are 5 regions, region 5 becomes the reference region. The appropriate relationships of any other region are higher or lower by a constant given by the coefficient of the corresponding x_i variable.

hand, when grouping the 69 countries by levels of income: 0-199, 200-499, 500 and up, there were almost no significant relationships between the variables expoused above for each group separately.

2. The portion of GNP a nation dedicates to education, and how funds are distributed among different levels of education does not depend on the economic development of the country (income per capita).

Perhaps other economic variables, not analyzed here, play a role in determining allocations, or it might be that non-economic variables are the major factor affecting educational finance. In view of this it is plausible to assume that enrollments are the dependent variable, the independent variables being the share of expenditures in the budget, the technical relationships between inputs of the educational process, and the unit cost of these inputs.

A corollary judgment from these two conclusions is that ways must be found to relate educational goals to the allocation process of educational funds, and that policies concerning educational finance should be developed on a regional or sub-regional basis.

Table IX
EQUATIONS

DEPENDENT VARIABLE = TEX/GNP (in percent)

		R^2	N
ALL COUNTRIES			
1.	$\text{Log } y = .2945 + \underset{(1.5636)}{.1006 \text{ Log } C}$	.0352	69
2.	$y = 19.2941 + \underset{(3.4113)}{18.6003 \text{ Log } C} - \underset{(3.3297)}{3.6580 \ (\text{LogC})^2}$	.1580	69
3.	$y = 19.8246 + \underset{(3.3043)}{17.3572 \text{ Log } C} + \underset{(2.9284)}{1.6079_{x1}} + \underset{(2.0237)}{1.1148_{x2}} + \underset{(1.1256)}{.5921_{x3}} + \underset{(2.7539)}{1.5525_{x4}} - \underset{(3.0365)}{3.2109 \ (\text{Log } C)^2}$	.2966	69
EASTERN AFRICA			
4.	$y = 57.7406 + \underset{(2.6090)}{53.3956 \text{ Log } C} - \underset{(2.4912)}{11.3195 \ (\text{Log } C)}$	.5033	15
EMENA			
5.	$y = 121.4580 + \underset{(2.9930)}{104.3756 \text{ Log } C} - \underset{(2.8953)}{21.3182 \ (\text{Log } C)^2}$	.7004	8
CENTRAL AMERICA AND CARIBBEAN			
6.	$y = 1.0834 + \underset{(2\ 7599)}{.5596 \text{ Log } C}$	.4324	12

TEX/GNP = Total Educational Expenditures/Gross National Product
C = Income per capita in US$

x_1, x_2, x_3, x_4 = Dummy variables

( ) = t values

Table X-p.1

DEPENDENT VARIABLE = PEX/GNP (in percent)

		R^2	N
ALL COUNTRIES			
1.	$\log y = .5203 + .4311 \log PEPP$ (4.4954)	.2317	69
2.	$\log y = -.7660 + .5346 \log PEPP + .1840x_1 + .1381x_2 - .0336x_3 + .0573x_4$ (5.5125) (3.0242) (2.0886) (.5130) (.7879)	.3739	69
EASTERN AFRICA			
3.	$\log y = -.4073 + .3305 \log C$ (2.4365)	.3135	15
4.	$\log y = -.4069 + .4297 \log PEPP$ (4.4775)	.6066	15
ASIA			
5.	$\log y = 1.5781 + .9846 \log PEPP$ (4.1833)	.6604	11
EMENA			
6.	$\log y = -1.1316 + .7744 \log PEPP$ (1.9522)	.3884	8
7.	$y = -38.8289 + 33.0248 \log C - 6.6155 (\log C)^2$ (1.7959) (1.7039)	.5344	8

Table X-p.2

		R^2	N
LATIN AMERICA			
8.	$\log y = -1.8986 + 1.1531 \log PEPP$ (3.9221)	.4348	22
SOUTH AMERICA			
9.	$\log y = .7952 - .2053 \log c$ (2.1716)	.3709	10
10.	$y = 25.3221 - 15.9681 \log c + 2.6668 (\log c)^2$ (2.3294) (2.2002)	.6334	10
C.A. & CARIBBEAN			
11.	$\log y = -1.3119 + .5565 \log c$ (2.8514)	.4484	12
12.	$y = -1.1258 + .0454 PEPP$ (4.5102)	.8188	12
13.	$\log y = -2.9978 + 1.7850 \log PEPP$ (6.7993)	.8222	12

PEX/GNP = Expenditures on Primary Education/Gross National Product
C = Income per capita in $U.S.
PEPP = Enrollment Rate in Primary Education
x_1, x_2, x_3, x_4, = Dummy variables

( ) = t values

Table XI

DEPENDENT VARIABLE = PEX/TEX (in percent)

		R^2	N
EASTERN AFRICA			
1.	$y = 4.5817 - \underset{(2.2425)}{3.6800} \log C + \underset{(2.2616)}{.8240} (\log C)^2$	.3033	15
WESTERN AFRICA			
2.	$y = .6299 - \underset{(2.7221)}{.0008} C$	.4025	13
3.	$\log y = .3045 - \underset{(2.7849)}{.2864} \log C$	.4135	13
EMENA			
4.	$y = 2.3781 - \underset{(1.3939)}{1.7392} \log C + \underset{(1.4277)}{.3761} (\log C)^2$	.3200	8

PEX/TEX = Expenditures on Primary Education/Total Educational Expenditures
C = Income per capita in $U.S.
( ) = t values

Table XII-p.1

DEPENDENT VARIABLE = SEX/GNP (in percent)

		R^2	N
ALL COUNTRIES			
1.	$\log y = -.1698 + .1703 \log SESP$ (2.2896)	.0726	69
2.	$\log y = -.7581 + .4935 \log SESP + .4299x_1 + .4922x_2 + .0395x_3 + .3025x_4$ (5.5775) (4.6288) (4.9495) (.4732) (3.2367)	.3954	69
EASTERN AFRICA			
3.	$\log y = -.1462 + .2584 \log SESP$ (1.9532)	.2269	15
4.	$y = -21.0052 + 19.1059 \log C - 4.0255 (\log C)^2$ (2.1653) (2.0549)	.4399	15
WESTERN AFRICA			
5.	$\log y = -.2145 + .4209 \log SESP$ (2.4066)	.3449	13
ASIA			
6.	$\log y = -.9204 + .6376 \log SESP$ (3.0259)	.5043	11
EMENA			
7.	$y = -68.2082 + 58.9682 \log C - 12.2312 (\log C)^2$ (3.1270) (3.0720)	.6789	8

Table XII-p.2

		R^2	N
LATIN AMERICA			
8.	$\log y = 1.3836 + .8872 \log SESP$ (5.5621)	.6074	22
CENTRAL AMERICA & CARIBBEAN			
9.	$y = -2.2448 + .7719 \log C$ (3.0140)	.4760	12
10.	$y = .2981 + .0212 SESP$ (4.0166)	.6173	12
11.	$\log y = -1.3931 + .9302 \log SESP$ (6.8531)	.8245	12
EMENA			
12.	$SEX/TEX = -5.7381 + 5.2768 \log C - 1.1199 (\log C)^2$ (2.0796) (2.0904)	.4674	8

SEX/GNP = Expenditures on Secondary Education/Gross National Product
SEX/TEX = Expenditures on Secondary Education/Total Educational Expenditures
SESP = Enrollment rate in Secondary Education
C = Income per capita in $U.S.
x_1, x_2, x_3, x_4, = Dummy variables
( ) = t values

Table XIII-p.1
DEPENDENT VARIABLE = HEX/GNP (in percent)

		R^2	N
ALL COUNTRIES			
1.	$\log y = -.2637 + .1601 \log HEHP$ (3.0029)	.1186	69
2.	$\log y = -.5348 + .3834 \log HEHP + .4245x_1 + .4083x_2 + .1605x_3 + .3273x_4$ (4.7566) (3.6468) (3.1455) (1.6659) (3.0789)	.3028	69
EASTERN AFRICA			
3.	$y = -20.5324 + 19.1265 \log C - 4.2445 (\log C)^2$ (2.5078) (2.5067)	.3439	15
WESTERN AFRICA			
4.	$\log y = -2.1841 + .8460 \log C$ (3.4992)	.5268	13
5.	$\log y = -.0462 + .5516 \log HEHP$ (5.4566)	.7302	13
ASIA			
6.	$y = .5017 + .0465 HEHP$ (1.9729)	.3019	11
EMENA			
7.	$y = -14.4209 + 12.3827 \log C - 2.4715 (\log C)^2$ (1.1262) (1.0646)	.3241	8

Table XIII-p.2

	R^2	N
EASTERN AFRICA		
8. $HEX/TEX = - 2.9669 + \underset{(1.9111)}{2.9059} \log C - \underset{(1.9660)}{.6637} (\log C)^2$	.2938	15
EMENA		
9. $HEX/TEX = - 4.3600 - \underset{(1.6592)}{3.5375} \log C + \underset{(1.6522)}{.7437} (\log C)^2$	.3556	8
WESTERN AFRICA		
10. $\log HEX/TEX = - 2.3318 + \underset{(2.9213)}{.6663} \log C$	.4369	13

HEX/GNP = Expenditures on Higher Education/Gross National Product
HEX/TEX = Expenditures on Higher Education/Total Educational Expenditures
C = Income per capita in $U.S.
x_1, x_2, x_3, x_4, = Dummy variables
( ) = t values

Table XIV-p.1

DEPENDENT VARIABLE = PEPP (in percent)

				R^2	N
ALL COUNTRIES					
1.	log y = .7066	+ .4161 log C (7.1623)		.4336	69
2.	log y = .7216	+ .3722 log C (7.1384)	+ .4143 log PEX/GNP (4.4967)	.5665	69
EASTERN AFRICA					
3.	log y = .2034	+ .6751 log C (2.9320)		.3980	15
4.	log y = 1.2309	+ 1.4118 log PEX/GNP (4.4775)		.6066	15
5.	log y = .6612	+ .3037 log C (1.4098)	+ 1.1238 log PEX/GNP (3.0603)	.6619	15
WESTERN AFRICA					
6.	log y = -.2810	+ .8389 log C (4.0785)		.6019	13
7.	log y = -.5146	+ .8940 log C (4.6780)	+ .5166 log PEX/GNP (1.7591)	.6960	13

Table XIV-p.2

		R^2	N
ASIA			
8.	$\log y = .9886 + .3107 \log C$ (1.6786)	.2384	11
9.	$\log y = 1.6459 + .6707 \log PEX/GNP$ (4.1833)	.6604	11
EMENA			
10.	$\log y = -.1925 + .7751 \log C$ (4.9655)	.8043	8
11.	$\log y = -.0154 + .6923 \log C + .1358 \log PEX/GNP$ (3.5120) (.7400)	.8236	8
LATIN AMERICA			
12.	$\log y = 1.1785 + .2357 \log C$ (3.6959)	.4058	22
13.	$\log y = 1.2835 + .2900 \log PEX/GNP + .1755 \log C$ (3.4725) (3.2474)	.6365	22
SOUTH AMERICA			
14.	$\log y = 1.4642 + .1453 \log C$ (2.5198)	.4425	10

CENTRAL AMERICA & CARIBBEAN	R^2	N
15. $\log y = 1.0301 + .2804 \log C$ (2.8106)	.4413	12
16. $\log y = 1.5882 + .0437 \log C + .4254 \log PEX/GNP$ (.5565) (4.4996)	.8281	12

PEPP = Primary school enrollment rate
C = Income per capita
PEX/GNP = Primary school expenditures/Gross National Product
( ) = t values

Table XV-p.1

DEPENDENT VARIABLE = SESP (in percent)

									R^2	N
ALL COUNTRIES										
1.	log y =	-.9687 +	.8523 log C (8.6747)						.5290	69
2.	log y =	-.5200 +	.6873 log C (6.4249)	- .1977x_1 (1.8755)	- .3051x_2 (2.8897)	+ .2809x_3 (2.7810)	+ .0906x_4 (.8514)		.7040	69
3.	y =	-4.6925 +	.4088 PEPP (6.0013)						.3496	69
4.	y	5.8653 +	.3092 PEPP (5.0724)	- 13.8236x_1 (3.7526)	- 13.4883x_2 (3.3617)	+ 7.3710x_3 (1.8553)	- 2.2838x_4 (.5175)		.5840	69
5.	log y =	.9075 +	.8250 log C (8.5420)	+ .2788 log SEX/GNP (2.1388)					.5595	69
EASTERN AFRICA										
6.	log y =	- 1.9142 +	1.2386 log C (4.6875)						.6283	15
WESTERN AFRICA										
7.	log y =	- 1.5339 +	1.0071 log C (3.8859)						.5786	13
8.	log y =	- 1.1837 +	.8317 log C (3.2600)	+ .4862 log SEX/GNP (1.8085)					.6824	13

Table XV-p.2

				R^2	N
ASIA					
9.	$y =$	$4.6690 + .0186\ C + 17.3976\ SEX/GNP$	$(2.1181) \quad (2.9114)$	.6055	11
10.	$\log y =$	$1.4222 + .7909 \log SEX/GNP$	(3.0259)	.5043	11
EMENA					
11.	$\log y =$	$-.2653 + .6223 \log C$	(1.8647)	.3669	8
LATIN AMERICA					
12.	$\log y =$	$-.1868 + .5670 \log C$	(3.998)	.4444	22
13.	$\log y =$	$1.4351 + .6845 \log SEX/GNP$	(5.5621)	.6074	22
14.	$\log y =$	$.4017 + .3692 \log C + .5404 \log SEX/GNP$	$(3.6437) \quad (5.1643)$	.7689	22
SOUTH AMERICA					
15.	$\log y =$	$.7953 + .2223 \log C$	(1.8878)	.3082	10
16.	$\log y =$	$.6959 + .2579 \log C + .1916 \log SEX/GNP$	$(2.1318) \quad (1.0865)$	.4080	10

CENTRAL AMERICA & CARIBBEAN	R^2	N
17. $\log y = -.949 + .8423 \log C$ (3.8313)	.5948	12
18. $\log y = .6222 + .3017 \log C + .7002 \log SEX/GNP$ (1.6297) (4.2314)	.8645	12
19. $SESP = -16.2429 + .6789 PEPP$ (2.1085)	.3078	12

SESP = Secondary School enrollment rate
C = Income per capita
SEX/GNP = Secondary school expenditures/Gross National Product
x_1, x_2, x_3, x_4, = dummy variables
( ) = t ratio

Table XVI-p.1

DEPENDENT VARIABLE - HEHP (in percent)

		R^2	N
ALL COUNTRIES			
1.	$y = .9157 + \underset{(5.6623)}{.0058}\ C$	.3237	69
2.	$\log y = -2.6352 + \underset{(8.2337)}{1.1478}\ \log C$	.5029	69
3.	$y = 4.7127 + \underset{(2.5623)}{.0029}\ C - \underset{(4.0401)^1}{4.5799}x_1 - \underset{(4.0915)^2}{4.7556}x_2 - \underset{(2.1066)}{2.3693}x_3 - \underset{(2.2673)^4}{2.8326}x_4$	.4961	69
4.	$\log y = -.9443 + \underset{(4.1294)}{.6036}\ \log C - \underset{(4.5655)}{.6576}x_1 - \underset{(6.0340)}{.8705}x_2 - \underset{(1.1757)}{.1623}x_3 - \underset{(1.6230)}{.2361}x_4$	.7103	69
5.	$y = 1.1247 + \underset{(4.0535)}{.1097}\ SESP$	.1969	69
6.	$y = 5.6866 + \underset{(1.2648)}{.0379}\ SESP - \underset{(4.6833)}{5.3812}x_1 - \underset{(4.4165)^2}{5.4153}x_2 - \underset{(3.0635)}{3.4289}x_3 - \underset{(2.8866)}{3.6012}x_4$	.4574	69
EASTERN AFRICA			
7.	$\log y = -2.2380 + \underset{(3.7245)}{.8968}\ \log C$	.5162	69
8.	$\log y = -2.0495 + \underset{(3.8128)}{.8458}\ \log C + \underset{(1.8827)}{.3512}\ \log HEX/GNP$	.6265	69

					R^2	N
WESTERN AFRICA						
9.	log y =	-3.8969 +	1.5431 log C (5.4571)		.7303	13
10.	log y =	-2.2215 +	.8942 log C (2.7475)	+ .7671 log HEX/GNP (2.7471)	.8463	13
ASIA						
11.	y =	-.8381 +	6.4948 HEX/GNP (1.9729)		.3019	11
EMENA						
12.	log y =	- 2.2657 +	1.0337 log C (2.2859)		.4655	12
SOUTH AMERICA						
13.	y =	5.2381 +	.0051 C (2.5749)		.4532	10

HEHP = Higher Education enrollment rate
C = Income per capita
HEX/GNP = Higher education expenditures/Gross National Product
x_1, x_2, x_3, x_4, = dummy variables
( ) = t ratio

Table XVII-p.1

DEPENDENT VARIABLES = PEPP SESS HEHP (in percent)

		R^2	N
EASTERN AFRICA			
1. PEPP =	94.4552 + .0420c - 213.0827 Ucp (1.2988) (5.3075)	.8082	15
2. log SESP =	- .7225 + .7176 log C - .63 log Ucs (3.2733) (4.0759)	.8441	15
ASIA			
3. log HEHP =	.2788 + .1280 log C - .8039 log Uch (.5994) (3.7305)	.6552	11
EMENA			
4. log SESP =	- .2855 + .6035 log C - .2098 log Ucs (1.7590) (.8363)	.4446	8
5. log HEHP =	- .9718 + .6686 log C - .7655 log Uch (2.2502) (3.3299)	.8339	8
LATIN AMERICA			
6. HEHP =	6.3271 + .0044 c - 1.6009 Uch (2.7295) (3.5889)	.5087	22
SOUTH AMERICA			
7. HEHP =	9.7413 + .0037 c - 2.3767 Uch (2.3458) (2.6672)	.7288	10

Table XVII-p.2

CENTRAL AMERICA & CARIBBEAN				R^2	N
8. log HEHP =	.3817 +	.0850 log C (.2929)	-.6464 log Uch (3.2718)	.5499	12

PEPP = Primary School Enrollment Rate
SESP = Secondary School Enrollment Rate
HEHP = Higher School Enrollment Rate
Ucp = Unit Cost Primary School/Gross National Product per capita
Ucs = Unit Cost Secondary School/Gross National Product per capita
Uch = Unit Cost Higher School/ Gross National Product per capita
C = Income per capita in $US
( ) = t ratio

Table XVIII-p.1

DEPENDENT VARIABLES - UCP (in percent)

		R^2	N
ALL COUNTRIES			
1.	$y = .2324 - .0001c$ (3.1294)	.1275	69
2.	$\log y = -.0048 - .3331 \log C$ (4.9333)	.2665	69
3.	$y = .1519 - .0001c + .0807x_1 + .1614x_2 - .0022x_3 + .0310x_4$ $(1.1808) \quad (1.7378) \quad (3.3898) \quad (.0480) \quad (.6057)$	.2947	69
4.	$\log y = -.3940 - .2065 \log + .1533x_1 + .2273x_2 - .0434x_3 + .0898x_4$ $(2.4514) \quad (1.8465) \quad (2.7333) \quad (.5458) \quad (1.0706)$	.3946	69
EASTERN AFRICA			
5.	$\log y = .1513 - .3871 \log C$ (2.2862)	.2868	15
WESTERN AFRICA			
6.	$\log y = 1.5001 - .9586 \log C$ (4.6732)	.6650	13
EMENA			
7.	$y = -3.1229 + 2.8517 \log C - .6084 (\log C)^2$ $(2.5931) \quad (2.6202)$	.5844	8

Table XVIII-p.2

		R^2	N
SOUTH AMERICA			
8.	$y = 3.2953 - \underset{(2.4924)}{2.1901 \log C} + \underset{(2.4019)}{.3732(\log C)^2}$	.5735	22
CENTRAL AMERICA & CARIBBEAN			
9.	$\log y = 1.7613 + \underset{(2.2596)}{.2935 \log C}$	.3380	12

Ucp = Primary School Unit Costs/Gross National Product per capita
C + Income per capita in $US
x_1, x_2, x_3, x_4 = Dummy variables
( ) = T ratio

Table XIX

DEPENDENT VARIABLE = UCS (in percent)

			R^2	N
ALL COUNTRIES				
1.	y	$= 1.3422 - .0011C$ (-3.7588)	.1742	69
2.	$\log y$	$= 1.5565 - .7522 \log C$ (-6.8438)	.4114	69
3.	y	$= .4855 - .0003C + 1.2640x_1 + 1.2546x_2 - .0155x_3 + .2709x_4$ $(-1.1000) \quad (3.9857)^1 \quad (3.8584)^2 \quad (.0493)^3 \quad (.7750)^4$	.4317	69
4.	$\log y$	$= .3607 - .3636 \log C + .5245x_1 + .5972x_2 - .0532x_3 + .2351x_4$ $(3.2842) \quad (4.8080)^1 \quad (5.4658)^2 \quad (.5086)^3 \quad (2.1340)^4$	.6835	69
EASTERN AFRICA				
5.	$\log y$	$= 1.8795 - .8217 \log C$ (2.5877)	.3400	15
WESTERN AFRICA				
6.	$\log y$	$= 1.5204 - .6174 \log C$ (2.3518)	.3346	13

UCS = Secondary School Unit Costs/Gross National Product per capita
C = Income per capita
x_1, x_2, x_3, x_4 = dummy variables
( ) = t ratios

Table XX

DEPENDENT VARIABLE = UCH (in percent)

										R^2	N
ALL COUNTRIES											
1.	y =	10.9544	−	.0093C (3.9058)						.1855	69
2.	$\log y$ =	2.6616	−	.8600 logC (6.0754)						.3552	69
3.	y =	3.3700	−	.0025C (1.0624)	+ 9.1183x_1 (3.9085)[1]	+ 13.4786x_2 (5.6348)[2]	+ .7864x_3 (.3398)[3]	+ 1.3748x_4 (.5347)[4]		.5204	69
4.	$\log y$ =	.8917	−	.2924 logC (2.0558)	+ .7101x_1 (5.0670)[1]	+ .9039x_2 (6.4398)[2]	+ .1176x_3 (.8758)[3]	+ .3327x_4 (2.3508)[4]		.6549	69
EASTERN AFRICA											
5.	$\log y$ =	2.5422	−	.7257 logC (2.3645)						.3007	15
WESTERN AFRICA											
6.	y =	27.0864	−	.0557C (2.8577)						.4261	13

UCH = Higher Education Unit Costs/Gross National Product per capita
C = Income per capita
x_1, x_2, x_3, x_4 = dummy variables
( ) = t values

Part III

A Comparison of Educational Expenditures in OECD and the Developing Countries

An analysis similar to the one used in Part II to compare patterns of educational expenditures of geographical regions was done also to compare patterns of expenditures of OECD countries as a group, and those of LDCs as a group. The conclusions are as follows:

A "typical" OECD country spends a higher proportion of GNP on education than a "typical" developing country (see Tables XXI and XXII). The allocation of educational budgets also varies. Developing countries spend a higher proportion of their budgets on elementary education, a smaller proportion on secondary, and a similar proportion on higher education. If we focus on each educational level we can see in Table XXII-2 that:

a) A "typical" developing country spends the same proportion of GNP on elementary education as a "typical" OECD country. However, the enrollment rate is almost half that of the OECD country. Since the unit cost in terms of GNP per capita is almost the same (around 15%), it follows that this low enrollment rate results from the high proportion of school-age children in the population (21% in the LDCs vs. 10% in the OECD countries).

b) On the other hand, the low enrollment rates in secondary and higher education - 13% vs. 70%, and 1.48% vs. 11.8% respectively -

are the consequence of high unit costs in relation to GNP/capita - 52% in the LDCs vs. 21% in the OECD countries for secondary, and 362% in the LDCs vs. 55% in the OECD countries for higher education.

Under the present educational structure and unit costs, the typical developing country would have to spend 3.07% of GNP on elementary, 5.46% on secondary, and 4.70% on higher education in order to have the enrollment rates similar to those of a typical OECD country. This would entail a total educational expenditure of 13.23% of GNP, and hence an increase of 380% on present expenditures. Conversely, if unit costs/GNP per capita of LDCs were the same as for OECD countries, LDCs would on the average spend 1.78% of GNP on elementary, .4% on secondary, and .09% on higher education, a total of 2.27% compared with an actual 3.47%. The "savings" of 1.2% of GNP (3.47% - 2.27%), if applied to the different levels of education, could increase enrollment rates of elementary education by 36% to 89%, or of secondary education by 38% to 51%, or of higher education by 20% to 21.4%, or any other combination thereof.

Table XXI-1: OECD COUNTRIES

RATIO OF EXPENDITURES BY EDUCATIONAL LEVEL TO GNP OF A "TYPICAL COUNTRY" AND PERCENT DEVIATION FROM THIS RATIO BY COUNTRY

(In Percentages)

	Expenditures/GNP				Deviations			
	Total	Primary Level	Secondary Level	Higher Level	Total Expenditures	Primary Level	Secondary Level	Higher Level
"TYPICAL COUNTRY"	4.40	1.68	1.79	.71				
Australia	5.20	1.84	1.53	1.81	18	10	- 13	155
Austria	5.78	2.02	3.05	0.69	31	20	70	- 01
Belgium	4.76	1.27	2.74	0.74	08	- 24	53	04
Canada	7.37	2.47	2.63	2.26	67	47	47	219
Denmark	6.94	2.71	2.62	1.60	57	61	46	126
Finland	5.55	2.72	2.10	0.71	26	62	17	01
France	2.91	0.83	1.55	0.52	- 33	- 50	- 13	- 25
Germany	4.15	1.68	1.51	0.94	- 05	00	- 15	33
Greece	2.00	0.93	0.69	0.38	- 54	- 44	- 61	- 45
Iceland	2.61	1.07	1.33	0.20	- 40	- 35	- 25	- 70
Ireland	5.44	1.62	3.02	0.79	23	- 03	68	12
Italy	5.35	2.05	2.73	0.57	21	22	52	- 18
Japan	2.92	1.30	1.23	0.38	- 33	- 22	- 30	- 45
Luxembourg	2.75	1.53	1.19	0.03	- 37	- 08	- 33	- 95
Netherlands	5.54	1.98	2.69	0.87	25	17	50	22
New Zealand	5.32	1.63	2.31	1.37	21	- 02	29	94
Norway	7.08	4.09	1.93	1.04	60	143	08	47
Portugal	3.55	1.70	1.30	0.54	- 19	01	- 27	- 23
Spain	1.81	0.76	0.68	0.36	- 58	- 54	- 61	- 48
Sweden	5.00	2.86	1.11	1.03	13	70	- 37	45
Switzerland	4.78	1.59	2.30	0.88	08	- 04	28	24
United Kingdom	5.34	1.46	2.17	1.70	21	- 12	21	139
United States	5.98	1.72	2.34	1.91	36	02	31	169

Table XXI-2: OECD COUNTRIES

FACTORS INFLUENCING EXPENDITURES IN PRIMARY EDUCATION

(In Percentages)

	Primary Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations		
					Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor
"TYPICAL COUNTRY"	1.68	16	97.50	10			
Australia	1.84	13	100	13	- 12	2	32
Austria	2.02	29	100	08	83	2	- 30
Belgium	1.27	12	100	10	- 22	2	02
Canada	2.47	20	100	11	31	2	18
Denmark	2.71	25	100	10	57	2	07
Finland	2.72	32	100	08	102	2	- 15
France	0.83	09	100	09	- 42	2	- 09
Germany	1.68	16	100	10	00	2	04
Greece	0.93	10	80	11	- 36	- 17	12
Iceland	1.07	08	100	12	- 47	2	28
Ireland	1.62	11	100	14	- 29	2	43
Italy	2.05	22	100	09	41	2	- 09
Japan	1.30	14	100	09	- 10	2	- 09
Luxembourg	1.53	15	100	10	- 05	2	01
Netherlands	1.98	18	100	10	14	2	08
New Zealand	1.63	11	100	14	- 27	2	41
Norway	4.09	42	100	09	166	2	- 03
Portugal	1.70	17	83	11	07	- 13	17
Spain	0.76	07	82	12	- 54	- 15	27
Sweden	2.86	34	100	08	116	2	- 17
Switzerland	1.59	18	100	08	14	2	- 12
United Kingdom	1.46	12	100	11	- 18	2	13
United States	1.72	13	100	12	- 15	2	27

Table XXI-3: OECD COUNTRIES

FACTORS INFLUENCING EXPENDITURES IN SECONDARY EDUCATION

(In Percentages)

	Secondary Level Expenditures / GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	1.79	21	70.34	12			
Australia	1.53	18	65	12	- 13	- 06	07
Austria	3.05	26	74	15	27	05	27
Belgium	2.74	33	70	11	57	00	- 02
Canada	2.63	21	75	16	02	07	35
Denmark	2.62	34	74	10	62	05	- 13
Finland	2.10	18	83	13	- 09	18	10
France	1.55	16	71	13	- 23	01	12
Germany	1.51	18	76	10	- 11	09	- 11
Greece	0.69	09	66	10	- 53	- 05	- 10
Iceland	1.33	11	98	11	- 46	40	- 00
Ireland	3.02	25	86	13	23	22	13
Italy	2.73	33	63	12	61	- 09	05
Japan	1.23	14	67	12	- 28	- 04	02
Luxembourg	1.19	20	55	10	- 02	- 20	- 13
Netherlands	2.69	26	75	13	23	07	14
New Zealand	2.31	22	74	13	06	06	15
Norway	1.93	22	79	10	07	13	- 10
Portugal	1.30	23	50	11	10	- 28	- 06
Spain	0.68	09	58	12	- 53	- 17	00
Sweden	1.11	17	68	09	- 18	- 02	- 21
Switzerland	2.30	47	40	11	126	- 41	- 01
United Kingdom	2.17	27	73	10	32	04	- 11
United States	2.34	18	94	13	- 13	34	13

Table XXI-4: OECD COUNTRIES

FACTORS INFLUENCING EXPENDITURES IN HIGHER EDUCATION

(In Percentages)

	Higher Level Expenditures GNP	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden Factor	Deviations: Unit Cost GNP Per Capita	Deviations: Enrollment Ratio	Deviations: Demographic Burden Factor
"TYPICAL COUNTRY"	.71	55	11.82	11			
Australia	1.81	114	12.96	12	107	09	11
Austria	.69	66	11.02	09	21	- 06	- 13
Belgium	.74	48	14.58	10	- 11	23	- 05
Canada	2.26	72	24.18	12	31	104	17
Denmark	1.60	78	19.27	10	41	63	- 02
Finland	.71	49	11.48	12	- 10	- 02	15
France	.52	37	12.50	11	- 31	05	02
Germany	.94	80	12.66	09	46	07	- 15
Greece	.38	40	9.34	10	- 26	- 20	- 07
Iceland	.20	18	8.57	13	- 66	- 27	21
Ireland	.79	76	9.16	11	38	- 22	03
Italy	.57	37	15.06	10	- 31	27	- 06
Japan	.38	21	15.21	12	- 61	28	10
Luxembourg	.03	24	1.66	08	- 55	- 85	- 22
Netherlands	.87	81	9.00	11	48	- 23	07
New Zealand	1.37	59	19.08	12	08	61	10
Norway	1.04	65	14.87	10	18	25	- 01
Portugal	.54	89	6.31	09	62	- 46	- 12
Spain	.36	31	10.96	10	- 42	- 07	- 04
Sweden	1.03	63	15.77	10	16	33	- 06
Switzerland	.88	94	8.55	10	71	- 27	- 00
United Kingdom	1.70	151	11.02	10	175	- 06	- 07
United States	1.91	41	36.23	12	- 23	206	14

Table XXII

Educational Expenditures of Typical OECD and Developing Countries

Ratio of Expenditures by Educational Level to GNP

	Total	Primary	Secondary	Higher
OECD	4.40	1.68	1.79	.71
Developing Countries	3.47	1.67	1.05	.58

Percent Distribution of Educational Budgets by Level

	Primary	Secondary	Higher
OECD	38.1	40.7	16.2
Developing Countries	48.1	30.2	16.7

Factors Influencing Expenditures

	Unit Cost GNP Per Capita	Enrollment Ratio	Demographic Burden
Primary Education			
OECD	16	97.5	10
Developing Countries	15	53	21
Secondary Education			
OECD	21	70	12
Developing Countries	52	13	15
Higher Education			
OECD	55	11.8	11
Developing Countries	362	1.48	11